

# MODIS-Aqua perspective

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A birthday cake with white frosting, topped with colorful sprinkles and a gold foil balloon topper that reads "HAPPY BIRTHDAY". The cake is set against a light blue background with some confetti scattered on the surface.

HAPPY  
BIRTHDAY

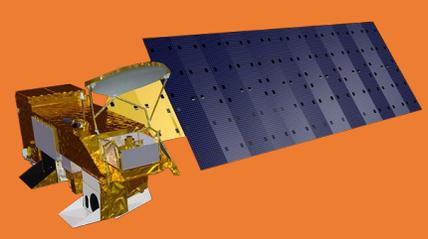
Happy 21<sup>st</sup> anniversary Aqua!

Aqua launched on May 4<sup>th</sup>, 2002



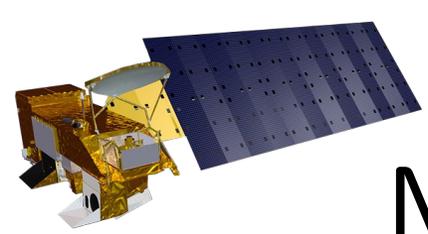
# Likely Aqua Future

- Will be extended for ~ 3 years of science operations (~July 2026) + ~ 3 years of Science Phase F (FY27-FY29)
  - Will reach ~3:30 MLT by July 2026
  - MLT projection different than in 2022 EOS Drifting Orbits Workshop (no PLMs in Summer 2024)
- Subject to successful Senior Review
  - Proposal submitted on April 14, 2023 (284 pages!)
  - Lean “inguide” budget (~50% of optimal)
- Continue science/applications *despite* drift, enable new science/applications *because* of drift

A small image of the Aqua satellite and its solar panel array, positioned in the top left corner of the slide.

# Highlights of Aqua SR2023 proposal

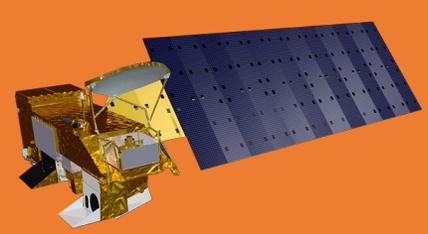
- Accomplishments of last 3 years in science and applications
  - Value of extended mission: most came from RFI responses and Drifting Orbits workshop
  - Relevance to 10 Decadal Survey Targeted Observables (TOs)
  - Hardware is in good shape
    - Flight software (clock rollover) anomaly in January 2026 will be prevented
  - Not enough power because of drift and deteriorating beta angle by August-September 2026
  - Need to satisfy 25-year re-entry requirement
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- A decorative yellow dashed line consisting of several curved segments, located in the bottom right corner of the slide.



# MODIS-specific

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- 36 of 109 RFI EOS Drifting Workshop responses had MODIS content
- Aqua SR2023 proposal highlighted:
  - Unique spectral information of MODIS (531, 678, 940 nm, IR O3, WV, CO2 bands)
  - Wide swath allows fixed Local Time observations at different geometries
  - More observations of fires and convection at their peak (later MLTs)
  - Diurnal cycle (LST for heat stress, ET for plant stress)
  - Overlap with PACE and CLARREO-PF
  - Can correct historical imagers that drifted
- 24 MODIS algorithm maintenance proposals, 22 common with Terra, one unique to Aqua, one unique to Terra
  - Budgets generally restrained, hope to be able to fund at levels reasonably close to requests



# Challenges

- Aliasing of CDR time series
- Less clear-sky over land later in the afternoon
- Lower SNR may be problem in some cases (e.g., ocean  $R_{rs}$ )
- Reduced geographical coverage for some products
- Algorithm mods because of MLT drift beyond maintenance?
  - Future ROSES (e.g., TASNPP) with element on new science because of drift?
- Continuity (upcoming workshop May 23-25)